

Vaccinium vacillans Kalm; blue toad-flax, *Linaria canadensis* (L.) Dum. and rattlesnake-weed, *Hieracium venosum* L., with basal leaves green and purple-veined were also found. In the woods west of Kreischerville a small patch of primrose-leaved violet in bloom; and along the road, escaping from old gardens, the star-of-Bethlehem, *Ornithogalum umbellatum* L., were noted.

These were some of the more conspicuous plants which were recorded in my notebook. To those who are unfamiliar with the flora of New York City, the metropolis would seem an uninteresting botanical field. This is only one of the many excursions that may be taken in the city, and much of the original flora still exists.

HUDSON FALLS, N. Y.

OBSERVATIONS ON CALOPOGON PULCHELLUS IN LAKE CO., INDIANA

BY EDWIN D. HULL

This species, which is fairly abundant near Hammond, differs widely in its time of flowering according to the habitat in which it grows. The 7th edition of Gray's Manual gives July as the flowering time in the range covered by that book. In this region, however, it may bloom nearly a month earlier. Here among the beach ridges of the old Lake Chicago plants are to be found in two very different habitats. More numerous and vigorous plants are found in depressions between the ridges with a typical swamp or bog flora. In one of these depressions I found *Calopogon* very abundant. Occurring with it were various species of true moss, a little *Sphagnum*, *Equisetum arvense*, *E. fluviatile*, *Lycopodium inundatum*, *Carex Oederi pumila*, *Pogonia ophioglossoides*, *Liparis Loeselii* and *Drosera rotundifolia*. Most of these, although not all, are typical bog forms. This particular depression, therefore, partakes more of the nature of a bog than an ordinary swamp. It is evidently fed by springs, and standing water can be found the year round. All the other depressions about it contain only the ordinary swamp flora. Here in this bog

Calopogon does not flower until the time usually supposed for this species. My earliest record is July 4, 1912.

About a mile distant from this bog less numerous and more dwarfed plants of *Calopogon* are found still persisting although the swamp which was its original habitat has now become dry (I believe through drainage), and is being invaded by the black oak (*Quercus velutina*) preceded by the characteristic fern of the oak associations in this region, *Pteris aquilina*. In the remaining open area of this swamp *Calopogon* has entirely disappeared. Typical bog forms as *Drosera rotundifolia*, if indeed they ever existed, have also disappeared. The remaining swamp flora is becoming much dwarfed, and doubtless will soon vanish. The only swamp form which seems to be holding its own is *Viola lanceolata*. *Aspidium thelypteris* and *Osmunda regalis* were extremely dwarfed, the latter infertile. Of *Iris versicolor* a single specimen remained. Of numerous specimens of the button-bush (*Cephalanthus occidentalis*) all were dead except for a few dwarfed shoots from the base. *Calopogon* here, although not found in the open, occurs in fair numbers at the bases of the black oaks at the edge of the swamp. In such a habitat it blooms about a month earlier than do those of the bog. My earliest record is June 3, 1911. Of course, plants in both situations may bloom earlier or later according to the fluctuations of the weather. In June of the present year (1913) I found at the base of a black oak about ten feet in height 39 specimens of *Calopogon* mingled with such forms as *Euphorbia corollata*, *Viola sagittata* and *Phlox pilosa*. A short distance from the base of the tree, more in the open, but not over ten feet away, were such characteristic plants of dry sandy soil as *Pteris aquilina*, *Lupinus perennis*, *Tephrosia virginiana*, *Helianthemum canadense*, and *Viola pedata lineariloba*. As before stated, all the specimens of *Calopogon* are much dwarfed. The largest number of flowers found in a single raceme was five. Even this small number was exceptional. Three was the average number, and often there were only two or even one. The plants farthest from the base of the tree usually consisted of the leaf only. The early blooming of *Calopogon* in this habitat is doubtless due to the well-known causes which induce early flowering, namely, drought and high temperature.

Certain orchids have been cited as indices of the xerophytic nature of bog habitats. *Calopogon* is a typical bog orchid. That it is able to persist in this undoubtedly xerophytic black oak association might appear to some to be a good proof of the xerophytic character of this species. I cannot believe, however, that this is the case. That it is able to persist at all is no doubt due to the greater accumulation of moisture at the base of the oak, with the possible further advantage of a certain degree of shade, although this species typically occurs in the open. If the plant is xerophytic it should be able to persist in the open dried-up swamp, where it does not. In nearly all the plants observed here the leaf was dead and shriveled for about an inch from the apex. A greater degree of shading will, however, certainly eliminate this species, and it is evident that it must eventually disappear as the surrounding vegetation becomes more dense.

CHICAGO, ILL.

SHORTER NOTES

A NEW *SENECIO* FROM CUBA.—In the writer's recent paper on "New Species of Cuban Senecioneae" *Senecio pachylepis* was contrasted with *S. eriocarphus*. Both species were characterized from specimens secured by Mr. J. A. Shafer during his botanical explorations in eastern Cuba but the description of the latter species was unfortunately omitted. It may be recorded as follows:

Senecio eriocarphus Greenman, n. sp. Caulis lignescens 1.5–2.5 dm. altus; ramulis ultimis juventate teretibus dense hirsuto-tomentosis; foliis alternis petiolatis coriaceis oblongo-obovatis vel oblanceolatis 2.5–8 cm. longis .5–3 cm. latis supra glabris subtus primum tomentulosus mox glabratis vel in nerviis plus minusve persistenter pubescentibus ad apicem acutis vel obtusis integris remote sinuato-dentatis, marginibus plerumque revolutis; petiolis usque ad 1.5 cm. longis plus minusve hirsuto-tomentosis; inflorescentiis terminalibus dense cymosis sessilibus fulvo-tomentosis; capitulis calyculatis discoideis; squamellis calyculatis linearis vel subspathulatis 3–5 mm. longis; involucri squamis 8